

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|---|--|---|
| Applicant's or agent's file reference 58882WO003 | FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below. | |
| International application No. PCT/US2005/002464 | International filing date (day/month/year) 26/01/2005 | (Earliest) Priority Date (day/month/year) 23/03/2004 |
| Applicant 3M INNOVATIVE PROPERTIES COMPANY | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 3

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2005/002464

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

An apparatus and method for flexing a web(330) is disclosed. The web passes over two co-rotating members, such as rollers or belts(311,312,321,322), which are separated by a small adjustable gap. The web travels around the first rotating member, is peeled off in the vicinity of the gap, bent back on itself in a small radius and reattached on the second co-rotating member. The location of the small radius is fixed with a closed loop control system sensing the radius location and controlling the relative velocity of the two members. Strain in the web is adjusted with the size of the small radius, which is controlled by the adjustable gap and radius location.

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65H23/022

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC 7 B65H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | EP 1 258 555 A (RIFINIZIONE S. GIOVANNI SPA) 20 November 2002 (2002-11-20) the whole document | 1-4 |
| X | WO 98/56702 A (ROCKWOOL INTERNATIONAL A/S; MOGENSEN, LASSE) 17 December 1998 (1998-12-17) | 13 |
| A | page 3, line 6 - line 10 page 7, line 21 - line 30 page 8, line 25 - line 25 page 9, line 1 - line 13 page 11, line 16 - page 12, line 9; figures | 5 |
| X | US 5 517 737 A (VILTRO ET AL) 21 May 1996 (1996-05-21) abstract; figures | 1-4 |

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

11 April 2005

Date of mailing of the international search report

21/04/2005

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | WO 97/32069 A (ROCKWOOL INTERNATIONAL A/S; MOGENSEN, LASSE) 4 September 1997 (1997-09-04) abstract ----- | |
| A | US 6 152 345 A (GRIFFIN ET AL) 28 November 2000 (2000-11-28) ----- | |
| A | US 2 618 012 A (MILNE DAVID T) 18 November 1952 (1952-11-18) ----- | |
| A | EP 0 658 505 A (EASTMAN KODAK COMPANY) 21 June 1995 (1995-06-21) ----- | |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2005/002464

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|--|--|
| EP 1258555 | A | 20-11-2002 | IT FI20000108 A1 EP 1258555 A1 | 12-11-2001 20-11-2002 |
| WO 9856702 | A | 17-12-1998 | AU 8624598 A WO 9856702 A1 | 30-12-1998 17-12-1998 |
| US 5517737 | A | 21-05-1996 | AT 207804 T AU 2517595 A CA 2191310 A1 DE 69523591 D1 DE 69523591 T2 EP 0764077 A1 ES 2161887 T3 JP 10501190 T KR 198984 B1 WO 9533618 A1 | 15-11-2001 04-01-1996 14-12-1995 06-12-2001 11-07-2002 26-03-1997 16-12-2001 03-02-1998 15-06-1999 14-12-1995 |
| WO 9732069 | A | 04-09-1997 | AU 1878397 A WO 9732069 A1 | 16-09-1997 04-09-1997 |
| US 6152345 | A | 28-11-2000 | NONE | |
| US 2618012 | A | 18-11-1952 | NONE | |
| EP 0658505 | A | 21-06-1995 | DE 69421593 D1 DE 69421593 T2 EP 0658505 A1 JP 7251989 A US 5803392 A | 16-12-1999 25-05-2000 21-06-1995 03-10-1995 08-09-1998 |